 Bloomchemag Private Limited	MATERIAL SAFETY DATA SHEET	MSDS No.	TC-5
	TEP - Triethyl phosphate	Effective From	6.04.2016

MATERIAL SAFETY DATA SHEET

SECTION # 1: PRODUCT INFORMATION

Trade Name : TEP - Triethyl phosphate

Manufacturer / Supplier Contact Information:

Name	Bloomchemag Private Limited
Address	E-3, First Floor Amity Innovation Incubator, Amity University, Sector 125, Noida - 201301 India
Telephone	Phone: +91 120 4659134
Email	info@bloomchemag.com


Belgium Office Address –

Name	Bloomchemag bvba
Address	Sint-Antoniusstraat 16 b1 B-2400, Mol, Belgium
Email	info@bloomchemag.com

REACH Registration Number	17-2120097634-46-0000
Only Representative	NetSun EU B.V
Tonnage Band	10-100
EC No.	201-114-5
Registration Deadline	2018.5.31

SECTION # 2: COMPOSITION/COMPONENT INFORMATION

Chemical products English name: Triethyl phosphate
 Common Name : TEP
 CAS No. : 78-40-0

 Bloomchemag Private Limited	MATERIAL SAFETY DATA SHEET	MSDS No.	TC-5
	TEP - Triethyl phosphate	Effective From	6.04.2016

Chemical name	Concentration	Additional identification	Notes
Triethyl phosphate	100%	CAS-No.: 78-40-0	

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.
 # This substance has workplace exposure limit(s).

SECTION # 3: HAZARDS IDENTIFICATION

Health classification :

Health Hazards

Acute toxicity (Oral) Category 4
 Serious Eye Damage/Eye Irritation Category 2A

OSHA Specified Hazards: not applicable

Warning label items including precautionary statement:

Pictogram:




Signal Words : Warning
 Hazard Statement(s) : H302: Harmful if swallowed.
 H319: Causes serious eye irritation.

Precautionary Statement:
 Prevention : P264: Wash hands thoroughly after handling.
 P270: Do not eat, drink or smoke when using this product.
 P280: Wear eye protection/face protection.

Response : P301+P312: IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell.
 P330: Rinse mouth.
 P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P337+P313: If eye irritation persists: Get medical advice/attention.

Disposal : P501: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Hazard(s) not otherwise classified (HNOC):None known.

 Bloomchemag Private Limited	MATERIAL SAFETY DATA SHEET	MSDS No.	TC-5
	TEP - Triethyl phosphate	Effective From	6.04.2016

SECTION # 4: FIRST AID MEASURES

Description of first aid measures

Inhalation : Move to fresh air. Treat symptomatically. Get medical attention if symptoms persist.

Eye contact : Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention. In case of irritation from airborne exposure, move to fresh air. Get medical attention if symptoms persist.

Skin contact : Wash with soap and water. Get medical attention if symptoms occur.
Ingestion : Seek medical advice.

Most important symptoms and effects, both acute and delayed : Serious eye irritation

Indication of any immediate medical attention and special treatment needed

Hazards : Causes serious eye irritation.

Treatment : Treat symptomatically.

SECTION # 5: FIRE FIGHTING MEASURE

General Fire Hazards : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. Keep upwind. In case of fire and/or explosion do not breathe fumes.

Extinguishing media

Suitable extinguishing media : Water spray, foam, dry powder or carbon dioxide.

Unsuitable extinguishing media

: Avoid water in straight hose stream; will scatter and spread fire.


Special hazards arising from the substance or mixture

: May ignite at high temperature. During fire, gases hazardous to health may be formed. Risk of chemical pneumonia after aspiration. Hazardous Combustion Products : carbon dioxide, carbon monoxide , oxides of phosphorus .

Advice for firefighters

Special fire fighting procedures

: In case of fire: Evacuate area. Move container from fire area if it can be done without risk. Use water spray to keep fire-exposed containers cool. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

 Bloomchemag Private Limited	MATERIAL SAFETY DATA SHEET	MSDS No.	TC-5
	TEP - Triethyl phosphate	Effective From	6.04.2016

Special protective equipment for fire-fighters

: Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

SECTION # 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

: Wear appropriate personal protective equipment. No action shall be taken involving any personal risk or without suitable training. Keep unauthorized personnel away. Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Ventilate closed spaces before entering them. Avoid inhalation of vapors and spray mists. Wear appropriate personal protective equipment. See Section 8 of the SDS for Personal Protective Equipment. Caution: Contaminated surfaces may be slippery. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Environmental Precautions

: Prevent further leakage or spillage if safe to do so. Clear up spills immediately and dispose of waste safely. Do not contaminate water sources or sewer.

Methods and material for containment and cleaning up:

Small Liquid Spills: Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.
 Large Spillages: Dike for later disposal. Collect spillage in containers, seal securely and deliver for disposal according to local regulations. Otherwise, absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. Prevent runoff from entering drains, sewers, or streams. For waste disposal, see section 13 of the SDS.


Notification Procedures

: In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

SECTION # 7: HANDLING AND STORAGE

Precautions for safe handling

: Do not handle until all safety precautions have been read and understood. Handle product only in closed system or provide appropriate exhaust ventilation at machinery. Avoid heat, sparks, open flames and other ignition sources. An eye wash bottle must be available at the work site. Wear appropriate personal protective equipment. See Section 8 of the SDS for Personal Protective Equipment. Do not taste or swallow. Avoid inhalation of vapors and spray mists. In case of inadequate ventilation, use respiratory protection. Do not get in eyes and avoid contact with skin and clothing. Wash promptly with soap and water if skin becomes contaminated. Remove contaminated clothing and wash it before reuse. Destroy or thoroughly clean contaminated shoes. Drain or remove

 Bloomchemag Private Limited	MATERIAL SAFETY DATA SHEET	MSDS No.	TC-5
	TEP - Triethyl phosphate	Effective From	6.04.2016

substance from equipment prior to break-in or maintenance. Handle in accordance with good industrial hygiene and safety practice. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities

: Keep container tightly closed. Store in a cool, dry place out of direct sunlight. Keep container tightly closed and in a well-ventilated place. Keep upright. Do not store in open or unlabelled containers. Store away from incompatible materials. Keep away from food, drink and animal feeding stuffs. Store in accordance with local/regional/national/international regulations.

Specific end use(s) : No data available.

SECTION # 8: EXPOSURE CONTROL / PERSONAL PROTECTION

Control Parameters

Occupational Exposure Limits

Country specific exposure limits have not been established or are not applicable unless listed below.

Exposure controls

Appropriate engineering controls:

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

General information :Eye bath. Washing facilities.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. Recommendations: Wear safety glasses with side shields (or goggles). Use safety goggles and face shield in case of splash risk.


Skin protection

Hand Protection

: It is a good industrial hygiene practice to minimize skin contact. If prolonged or repeated contact is likely, chemical resistant gloves are recommended. If contact with forearms is likely, wear gauntlet style gloves. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. After contamination with product change the gloves immediately and dispose of them according to relevant national and local regulations.

Other

: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Recommendations: Apron or other light protective clothing and boots. If prolonged or repeated contact is likely, chemical resistant

 Bloomchemag Private Limited	MATERIAL SAFETY DATA SHEET	MSDS No.	TC-5
	TEP - Triethyl phosphate	Effective From	6.04.2016

clothing is recommended. Promptly remove nonimpervious clothing that becomes wet or contaminated.

Respiratory Protection: Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA Standard 63 FR 1152, January 8, 1998. Respirator type: Air-purifying respirator with an appropriate, government approved (where applicable), air-purifying filter, cartridge or canister. Contact health and safety professional or manufacturer for specific information.

Hygiene measures : Observe good industrial hygiene practices. Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using the product. Wash at the end of each work shift and before eating, smoking and using the toilet. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Keep away from food, drink and animal feeding stuffs.

Environmental Controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels. Do not contaminate water sources or sewer.

SECTION # 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance

Physical state	: liquid
Form	: liquid
Color	: Colorless
Odor	: Mild
Odor Threshold	: Not determined.
pH	: No data available.
Melting Point	: -56.4 °C
Boiling Point	: 209 °C
Flash Point	: 99 °C (Pensky-Martens Closed Cup)
Evaporation Rate	: 4.54 g/1000 cm ² /h @ 100°C
Flammability (solid, gas)	: not applicable
Flammability Limit - Upper (%)-	: 10. %(V)
Flammability Limit - Lower (%)-	: 1.7 %(V)



Bloomchemag Private Limited

MATERIAL SAFETY DATA SHEET

MSDS No.

TC-5

TEP - Triethyl phosphate

Effective From

6.04.2016

Vapor pressure : 1.33 mbar (40 °C)
Vapor density (air=1) : 6.3
Specific Gravity : 1.07 (15.6 °C)

Solubility(ies)

Solubility in Water : Completely Soluble
Solubility (other) : No data available.
Partition coefficient (n-octanol/water) : log Pow: 1.11
Autoignition Temperature : 227 °C (ASTM D2155) 452 °C
Decomposition Temperature : (DTA) No exotherm to 500°C
Dynamic viscosity : 1.76 mPa.s (20 °C) | 0.82 mPa.s (71 °C)
Kinematic viscosity : Not determined.
Explosive properties : Not classified.
Oxidizing properties : Not classified.

SECTION # 10: STABILITY AND REACTIVITY

Reactivity : None known.
Chemical Stability : Stable

Possibility of Hazardous Reactions

:None known.

Conditions to Avoid

: None at ambient temperatures. Will decompose at temperatures exceeding 200°C.

Incompatible Materials

: Strong oxidizing agents.

Hazardous Decomposition Products

: Carbon dioxide , carbon monoxide , oxides of phosphorus , Phosphine.


SECTION # 11: TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation : None known.
Ingestion : None known.
Skin contact : None known.
Eye contact : Causes eye irritation.

Information on toxicological effects

Oral Product : Oral LD-50: (Rat): 1,311 mg/kg Harmful if swallowed.
Dermal Product : Dermal LD-50: (Rat): > 2,000 mg/kg

 Bloomchemag Private Limited	MATERIAL SAFETY DATA SHEET	MSDS No.	TC-5
	TEP - Triethyl phosphate	Effective From	6.04.2016

Inhalation Product : Not classified.
 : LC50 (Rat, 6 h): > 2050 ppm

Repeated dose toxicity Product

: NOAEC (Rat(Male.), Inhalation - dust and mist, 84 d): 366 mg/m³
 NOAEL (Rat(Male.), in diet, 120 d): 335 mg/kg
 NOAEL (Rat(Female.), in diet, 150 d): 335 mg/kg

Skin Corrosion/Irritation Product:

(Guinea Pig, 24 h): Slight

Serious Eye Damage/Eye Irritation

: (Rabbit): moderate

Respiratory or Skin Sensitization

: Skin Sensitization (Guinea Pig): non-sensitizing

Carcinogenicity

: This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.

Toxicity to reproduction

: No data available.

Developmental toxicity

: No data available

Germ Cell Mutagenicity

In vitro Product : Mutagenicity - Bacterial (Bacterial Reverse Mutation Assay): negative

In vivo Product : Chromosomal aberration intraperitoneal injection (Mouse, Male and Female):
 negative

Specific Target Organ Toxicity - Single Exposure

Product: Based on available data, the classification criteria are not met.

Specific Target Organ Toxicity - Repeated Exposure

Product: No data available.


Aspiration Hazard

Product: Not classified.

Other effects

: No data available.

SECTION # 12: ECOLOGICAL INFORMATION

 Bloomchemag Private Limited	MATERIAL SAFETY DATA SHEET	MSDS No.	TC-5
	TEP - Triethyl phosphate	Effective From	6.04.2016

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish

Product: LC-50 (golden orfe, 96 h): > 100 mg/l

Aquatic Invertebrates

Product: EC-50 (Water Flea, 24 h): 2,705 mg/l

Chronic hazards to the aquatic environment:

Fish

Product: No data available.

Aquatic Invertebrates

Product: NOEC (Water Flea, 21 d): 31.6 mg/l

Toxicity to Aquatic Plants

Product: EC-50 : No data available.

Persistence and Degradability

Biodegradation

Product: Readily biodegradable

BOD/COD Ratio

Product: No data available.

Bioaccumulative Potential

Bioconcentration Factor (BCF)

Product: Common Carp, Bioconcentration Factor (BCF): 1.3 (OECD Guideline Test No. 305:

Bioaccumulation in Fish: Aqueous and Dietary Exposure)

Partition Coefficient n-octanol / water (log Kow)

Product: Log Kow: 1.11

Mobility in Soil: No data available.

Other Adverse Effects: No data available

SECTION # 13: DISPOSAL CONSIDERATIONS


Waste treatment methods

General information

: The generation of waste should be avoided or minimized wherever possible. Dispose of waste and residues in accordance with local authority requirements.

Disposal methods

: Recover and reclaim or recycle, if practical. Dispose of this material and its container to hazardous or special waste collection point. Dispose of waste at an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal. Do not discharge into drains, water courses or onto the ground. Since emptied containers retain product residue, follow label warnings even after container is emptied. Recycle empty drums at an appropriate facility in accordance with current applicable laws and regulations, and product characteristics at time of disposal. Ensure drums are tightly sealed.

 Bloomchemag Private Limited	MATERIAL SAFETY DATA SHEET	MSDS No.	TC-5
	TEP - Triethyl phosphate	Effective From	6.04.2016

SECTION # 14: TRANSPORT INFORMATION

Important Note : Shipping descriptions may vary based on mode of transport, quantities, package size, and/or origin and destination. Consult your company's Hazardous Materials/Dangerous Goods expert for information specific to your situation.

DOT Class not regulated

IMDG - International Maritime Dangerous Goods Code
Class not regulated

IATA
Class not regulated

SECTION # 15: REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture.:

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

WHMIS (Canada) Status

: controlled

WHMIS (Canada) Hazard Classification

: D/2/B

SARA 311-312 Hazard Classification(s)

: immediate (acute) health hazard

US EPCRA (SARA Title III) Section 313 - Toxic Chemical List

NONE

OSHA

: hazardous

TSCA (US Toxic Substances Control Act)

: The intentional components of this product are listed on the TSCA inventory. Any impurities present in this product are exempt from listing.


DSL (Canadian Domestic Substances List) and CEPA (Canadian Environmental Protection Act)

: All intentional components of this product are listed on the DSL. Any impurities present in this product are exempt from listing.

AICS / NICNAS (Australian Inventory of Chemical Substances and National Industrial Chemicals Notification and Assessment Scheme)

: The intentional components of this product are listed on AICS or otherwise complies with NICNAS. Any impurities present in this product are exempt from listing.

MITI (Japanese Handbook of Existing and New Chemical Substances)

 Bloomchemag Private Limited	MATERIAL SAFETY DATA SHEET	MSDS No.	TC-5
	TEP - Triethyl phosphate	Effective From	6.04.2016

: This product is listed in the Handbook or has been approved in Japan by new substance notification.

ECL (Korean Toxic Substances Control Act)

: The intentional components of this product are listed on the Korean inventory or otherwise complies with the Korean Toxic Substances Control Act.KE-28646

Philippines Inventory (PICCS)

: The intentional components of this product are listed on the Philippine Inventory or otherwise comply with PICCS.

Inventory of Existing Chemical Substances in China

: All intentional components of this product are listed on the Inventory of Existing Chemical Substances in China (IECSC).

SECTION # 16: OTHER INFORMATION

HMIS® Hazard Ratings

: Health - 2, Flammability - 1, Chemical Reactivity - 0

HMIS® rating involves data interpretations that may vary from company to company. They are intended only for rapid, general identification of the magnitude of the specific hazard. To deal adequately with the safe handling of this material, all the information contained in this MSDS must be considered.

Revision Information : Not relevant.

Key literature references and sources for data:

No data available.

Training information : No data available.

Company's Declaration: Information contained in this MSDS is believed to be correct but no representation; guarantee or warranties of any kind are made as to its accuracy, suitability for particular application or results to be obtained from them. This MSDS shall be used as a guide only. Bloomchemag Pvt Ltd makes no warranties expressed or implied of the adequacy of this document for any particular purpose.